



EN / AIR CONDITIONING / TECHNICAL DOCUMENTATION

INSTALLATION INSTRUCTIONS

BREEZONIC

Engine-independent air-conditioning system for recreational vehicles

Designation

Breezonic Performance HP 230V 2.5kW
Breezonic Performance Plus HP 230V 3.5kW
Air Distribution Box

Order No.

29.0218.41.0001
29.0218.41.0002
29.0218.11.0001

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1 About this product

NOTE

- Ensure that you read and understand this document prior to installing the Breezonic air conditioner.
- Please keep this document safe for later reference.
- Before putting into service always read carefully through these installation instructions. The document contains important information necessary for the installation.
- Always note and follow all safety instructions in this documentation!
- The installation of the Breezonic air conditioner must be performed by qualified personnel. Refer to the Installation instructions document for information on how to install.

DANGER!

"Danger" indicates a situation that can directly result in death or serious injuries if not avoided.
→ This arrow indicates the appropriate measures to avert the imminent danger.

WARNING!

"Warning" indicates a situation that can potentially result in death or serious injuries if not avoided.
→ This arrow indicates the appropriate measures to avert the potential danger.

CAUTION!

"Caution" indicates a situation that can potentially result in minor or slight injuries if not avoided.
→ This arrow indicates the appropriate measures to avert the potential danger.

1.1 Special text formats and presentations

- > This arrow (>) indicates a list or action step, introduced by a heading.
 - If an indented dash (–) follows an "arrow", this list is a sub-section of the black arrow.

1.2 Cross-reference

Underlined blue text denotes a cross-reference, which can be clicked in the PDF format. The part of the document named in the text is then displayed.

NOTE

"Note" indicates potential problems during installation, maintenance or operation, gives recommendations for use and important tips for installation, operation, maintenance and repair.

REGULATION!

"Regulation" indicates statutory regulations or a directive. Failure to follow these regulations or directive results in expiry of the type-approval for the product and exclusion of any guarantee and liability claims against Eberspächer Climate Control Systems International GmbH.

1.3 Picture symbols

Safety instructions in this document are identified by symbols. The safety instructions are introduced by signal words, which express the extent of the hazard.

1.4 Safety precautions

- This document is intended for trained technicians qualified for installation of mains connected appliances.
- The air conditioner is filled with R32 refrigerant and refrigerant may not contain an odour.
- Electrical installation must be carried out by a qualified person, following applicable regulatory standards.
- If the vehicle does not have a roof hatch and it is necessary to cut open the cab roof, or if the existing structure is not sufficiently stable (e.g. if it is made of fibre-reinforced plastic, etc.), in consultation with the customer, the installer must decide whether the cab roof has to be reinforced to avoid deformations, fractures, leaks, etc.
- Before installing, check that the maximum vehicle height given in the vehicle documents is not exceeded following installation of the system.
- Before carrying out the installation, clarify with the vehicle manufacturer,
 - whether the driver's cab is designed for the static and dynamic loads imposed by the air-conditioning system in a vehicle that is moving.
 - whether installation of the air-conditioning system requires a change to the vehicle height in the vehicle documents.
 - whether the installation of the air-conditioning system could possibly damage vehicle components or impair their function.
- Installation and repairs must be performed by a qualified person. Do not attempt to repair or dismantle the air conditioner yourself as this can result in electric shock or fire hazards. Please consult an authorised service centre for repairs and maintenance.
- Beware of fire in case of refrigerant leakage.

- Only use the control units approved by Eberspächer Climate Control Systems International GmbH to operate the system. Do not use other control units.
- When installing the air-conditioning system protect the cab roof with a cloth or blanket to prevent scratches.
- Use suitable tools for each work step.
- Do not drag across the roof to position.

1.5 Limitation of liability

All data and information in this document has been compiled taking into consideration the relevant laws, directives, guidelines, standards and regulations, the state-of-the-art and many years of knowledge and experience.

1.5.1 General limitation of liability

- The manufacturer is not liable for damage caused by disregard of the technical documentation or technical data and/or the safety instruction, non-intended use or incorrect operation.
- Third party claims against the manufacturer due to misuse or the failure of the trade, the installation workshop or operator to meet their duty to instruct will be passed on accordingly.
- The obligations agreed in the supply agreement, the general terms and conditions of business and the supply conditions of the manufacturer apply, and the statutory provisions applicable at the time at which the contract was concluded.
- The guarantee only extends to original components of Eberspächer Climate Control Systems International GmbH.
- We reserve the right to make any changes as part of the improvement of performance characteristics and further technical development.

 CAUTION!**DAMAGE DUE TO PREMATURE SWITCHING ON!**

If the air-conditioning system is tilted during installation and then returned to the horizontal position, switching on too early can damage the unit.

→ Always wait at least 120 minutes before starting up after installation or repair work on the air-conditioning system.

1.6 Intended use

- Installation on the roof of recreational vehicles (RVs), caravans, pop-top caravans and camper trailers connected to a 230V AC power supply with operation while the vehicle is stationary only.
- The Breezonic air conditioner is for use in the living areas of the vehicle.
- The Breezonic air conditioner, taking into consideration its capacity, is intended for installation in street-legal recreation vehicles with CI-bus and RV-bus communication (e. g. motorhomes and camper vans).

 NOTE

- The air-conditioning unit Breezonic may only be installed and operated for the range of application stated by the manufacturer in compliance with the documentation included with every air-conditioning system.

Intended use also includes compliance with all information in the documents accompanying the product such as:

- the technical documentation
- the catalogues and brochures
- in addition the relevant national laws and directives

- in addition, the applicable body guidelines of the vehicle manufacturer

1.7 Non-intended use

- The Breezonic air conditioner is NOT intended for use in fixed installations such as domestic situations or on cabins or other structures.
- The Breezonic air-conditioner is not intended for installation in off-highway applications such as boats, food trucks, construction machines, agricultural or mining machines or similar working equipment being exposed to heavy vibrations, as well as the application in salt mines or in any other chemically aggressive environment.

 NOTE

The unit must not be used in any way contrary to the intended use. This non-intended use and any other use of the product extending beyond or differing from its intended use is deemed to be misuse. Failure to comply makes the guarantee null and void and this leads to the exclusion of any liability of Eberspächer Climate Control Systems International GmbH.

 DANGER!**DANGER IN CASE OF MISUSE!**

Misuse and / or improper configuration, installation, modification, maintenance or repair of the product can result in hazardous situations.

- Never use product arrangements or configurations that are not approved by the manufacturer.
- Never carry out installation, modification, maintenance or repair steps that are not approved by the manufacturer.

- Never use spare or accessory parts that are not original or approved by the manufacturer.

VERLETZUNGS- UND BRAND-GEFAHR DURCH FEHLENDE FEHLERSTROMSCHUTZEINRICHTUNG!

- Stellen Sie sicher, dass die Breezonic Anlage nur in ein Fahrzeug mit installierter Fehlerstromschutzeinrichtung (RCD = Residual Current protectice Device) eingebaut wird.

RISK OF FIRE OR EXPLOSION!

Flammable refrigerant inside the unit.

- To be repaired only by trained service personnel.
- Follow handling instructions carefully in compliance with national regulations.
- Do not puncture refrigerant tubing.
- Dispose of properly in accordance with federal or local regulations.

! CAUTION!

DAMAGE TO ELECTRICAL EQUIPMENT!

Possibility of condensation dripping down during the operation of the unit.

- Do not store electrical equipment underneath the ADB where it could be subject to drips from condensation.

1.8 Operation on uneven ground

When the vehicle is parked on uneven ground, the operation of the unit should be limited to a maximum inclination angle of 10°, to avoid causing damage to the air conditioning system.

1.9 Reference documents

i NOTE

- The operating instructions for this product are available in their current version on the Eberspächer website and can be downloaded: <https://www.eberspaecher.com/downloadcenter>
- The repair instructions and the spare parts lists for this product are available in their current form on the Eberspächer partner portal and can be downloaded here: <https://partner.eberspaecher.com>

1.10 Impermissible measures

The following measures are not allowed:

- Changes to components
- Any manipulation to the system refrigerant fill
- Repairs by unauthorised third parties and/or with non-original spare parts.
- Use of third-party components not approved by Eberspächer Climate Control Systems International GmbH.
- Installation or operation deviating from the safety and / or functionally relevant specifications stated in this document. This especially applies to the electrical wiring.
- The above-named impermissible measures cause the type-approval of the Breezonic air-conditioning to become null and void; consequently, when installed in motor vehicles they can cause expiry of the vehicle operating licence.

1.11 Safety instructions for installation and operation

- Remove the ignition key before starting the installation.
- Do not cover air inlet and outlet openings or insert foreign bodies in the openings. Maintain

a minimum distance of 10 cm from other additional parts.

- Following the installation, issue all the documents included in the scope of supply to the customer.
- This document is also available to view and to download from the Eberspächer Partner Portal.
- When carrying out electric welding work on the vehicle, disconnect the positive cable at the battery and connect it to ground to protect the product.
- Replace defective fuses only with fuses with the specified fuse rating.
- Do not start up the product if it is visibly damaged.
- Shut down the product immediately if it can be assumed that safe operation is no longer guaranteed.
- Take all measures to prevent accidental putting back into service.
- Do not operate the product near flammable liquids and gases.
- In case of fire, do not remove the top cover of the product; use approved extinguishing media only.
- Before carrying out any work on the product (cleaning, maintenance, etc.) disconnect all connections to the power supply.
- Keep the condensate outlet clear at all times during operation.

NOTE

All deviations from the safety instructions for installation and operation are to be agreed with the manufacturer in writing. Failure to comply makes the guarantee null and void and this leads to the exclusion of any liability of Eberspächer Climate Control Systems International GmbH.

1.12 Before the initial commissioning, check

- Compliance with the vehicle manufacturer's data regarding the electrical connection.
- Observance of the official regulations and safety instructions.
- All screw connections are tight.
- The electrical connection is correct.
- The system and panelling have no visible damage.

1.13 Perform the functional test

Following the installation perform a functional test. If the system switches to fault during the functional test, use the repair instructions to determine and correct the cause.

1.14 Statutory regulations

- Compliance with the statutory regulations, the additional regulations and the safety instructions is prerequisite for guarantee and liability claims.
- Failure to comply with the statutory regulations and safety instructions and incorrect repairs, even if original spare parts are used, make the guarantee null and void and this results in the exclusion of any liability whatsoever of Eberspächer Climate Control Systems International GmbH.
- The statutory accident prevention regulations and workshop and operating safety instructions are binding and must also be observed in countries which do not have any such special regulations.
- Further installation requirements are printed in the relevant sections of these installation instructions.

1.15 Note on environmental protection



WEEE Directive 2012/19/EU

Electric and electronic devices as well as batteries must not be disposed of with household waste. Consumers are obliged by law to return electrical and electronic devices as well as batteries at the end of their service lives to the public collecting points set up for this purpose or at the point of sale. Details to this are defined by the national law of the respective country. The symbol on the product, the instruction manual or the package indicates that a product is subject to these regulations.

2 Product information

2.1 Scope of Supply Breezonic and ceiling plate



Picture 1 Scope of supply Breezonic and ceiling plate

No.	Quantity	Designation	Order No.
1	1	Breezonic roof top air conditioner	on request
2	1	Roof mounting plate	on request

Air Distribution Box (ADB) and mounting/installation parts



Picture 2 Scope of supply Air Distribution Box (ADB) and mounting/installation parts

No.	Quantity	Designation	Order No.
1	1	Air distribution box (ADB)	on request
2	2	Installation bracket	on request
3	1	Duct section - base	on request
4	5	Duct section - middle	on request
5	1	Duct section - top	on request
6	4	M6 x 125 mm screws for roof top unit	on request
7	4	M5 x 16 mm screws for ADB	on request
-	1	Insert sheet	on request

2.2 Technical Data

		Breezonic Performance HP 230V 2.5kW	Breezonic Performance Plus HP 230V 3.5kW
Part no. Breezonic unit		29.0218.41.0001	29.0218.41.0002
Part no. Air Distributon Box		29.0218.11.0001	
Supply voltage	V AC	230	
Current consumption (cooling)	A	4.14	6.63
Current consumption (heating)	A	4.13	5.84
Cooling capacity (ISO 5151)	W	2500	3500
Heating capacity (ISO 5151)	W	2400	3600
Maximum airflow	m³/h	656	610
Cooling technology		Inverter with variable speed compressor / soft ramp-up	
Refrigerant / quantity	kg	R32 / 0.385	R32 / 0.495
Operating temperature	°C	-7 to 52	
Storage temperature	°C	-40 to 80	
Dimensions (roof unit)	mm	1.051 x 698 x 250	
Dimensions (interior unit)	mm	503 x 482 x 45	
Weight Rooftop / Air Distribution Box	kg	31.4 / 3.1	35.0 / 3.1
Hatch / Roof openings	mm	360 x 360 to 400 x 400	
Roof thickness	standard	25 to 65	
	with additional kit	65 to 100	
Maximum angle of operation		10 (all directions)	
Communication interfaces		CI- Bus, RV-C, Bluetooth (app), Infrared (remote control)	
Control unit		• Control via app • Touch screen control panel on device • Remote control (optional accessory)	
Water protection rating		IPX4	

CAUTION!

MALFUNCTIONS AND DAMAGE TO THE UNIT

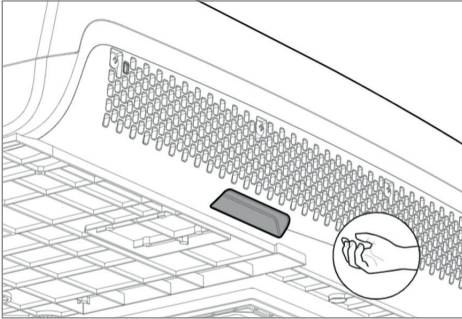
Operating the air-conditioning system outside the technical data can cause malfunctions.

→ Comply with the technical data.

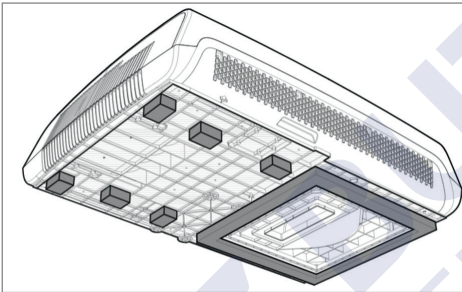
NOTE

The technical data applies at rated voltage and a reference height of 240m above sea level. If not limit values are given the tolerance is ±10 %.

3 Installation



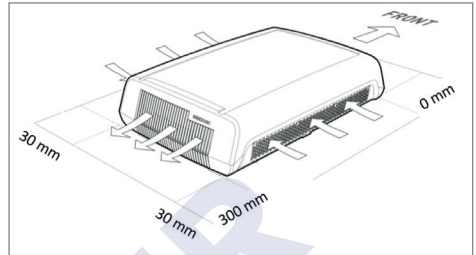
The air conditioner can be lifted by two people using the handles on the side of the unit.



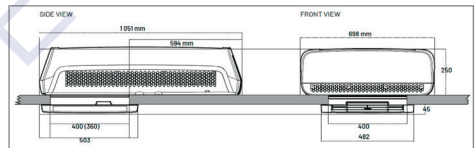
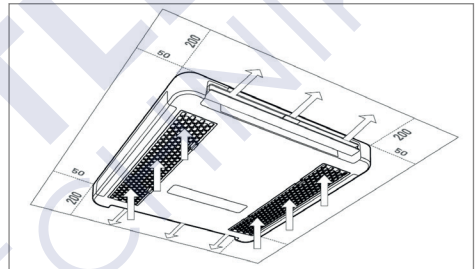
Ensure the foam pads and seal remain in place when handling the unit.

3.1 Choosing the installation location

- The location should be as close as possible to the centre of the vehicle and be between two roof supports.
- Ensure the roof angle is no greater than 10° in any direction during operation.
- Airflow to and from the rooftop unit is required for the air conditioner to operate effectively. Ensure the minimum clearance is provided to other objects such as roof hatches and solar panels.



Ensure the ADB has the minimum clearance to other objects such as cabinets.

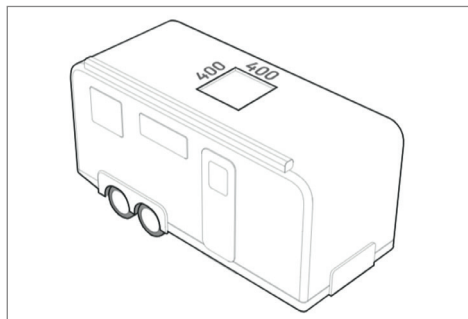


3.2 Making the opening

! CAUTION!

- Ensure the power to the vehicle is disconnected before any work begins.
- Ensure no electrical wiring is in the path of cutting / drilling.

> The air conditioner can be installed in an existing roof opening (replacing a hatch, for example), or by making a new opening.



- > New opening: 400 mm x 400 mm
- > Existing opening: 360 mm x 360 mm or 400 mm x 400 mm

! CAUTION!

If the air conditioner is being fitted by replacing an existing roof hatch, ensure that any passive ventilation provided by the roof hatch is replaced by another source, to maintain safe ventilation of the vehicle.

- > Use a template to mark the opening before cutting.
- > After cutting the opening, reinforce the opening with an internal frame of at least 25 mm thickness around the perimeter of the opening, between the upper and lower roof panels.

3.3 Running the mains wiring

- > Check the voltage on the product label matches the mains supply voltage.

i NOTE

A qualified electrician must perform the electrical work.

- > Run the wiring that will supply the mains voltage to the air conditioner and route it to the roof opening.

- > Ensure the air conditioner is on a dedicated circuit with a circuit breaker and residual current device (RCD). Ensure the cable thickness on the circuit can supply the required current (refer Section #).
- > Wiring for an auxiliary controller (optional) can also be routed.

3.4 Installing the roof frame

i NOTE

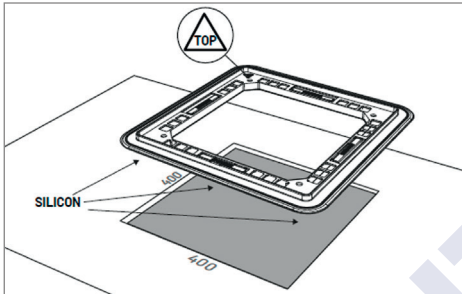
Do not drag the roof frame across the roof to position as the foam blocks may shift or come loose.

- > The roof frame is designed to be used with 360 x 360 mm or 400 x 400 mm roof openings by using hinged alignment tabs.
 - For a 360 x 360 mm roof opening, cut or break where indicated so the tabs can hinge upwards. This can be done by putting the roof frame in place in the roof opening and pressing down.
- > Seal the roof frame all round with non-hardening Butyl sealing material, e.g. SikaLastomer-710, Selleys Butyl Mastic, Bostik Ezycaulk Butyl Sealant, or similar.
- > Install the roof frame onto the roof opening.



i NOTE

- Ensure the bottom surface is not obstructed by debris or sealant for adequate drainage.
- Ensure the foam pads remain in place to support the weight of the unit.



3.5 Installing the roof top unit

i NOTE

Do not drag the roof top unit across the roof to position as the foam blocks may shift or come loose.

- > Lift the roof top air conditioner and gently lower onto the frame.
- > No sealant is to be used between the frame and the rooftop unit.

i NOTE

- Ensure the bottom surface is not obstructed by debris or sealant for adequate drainage.
- Ensure the foam pads remain in place to support the weight of the unit.

3.6 Fitting the ADB (Air Distribution Box)

i NOTE

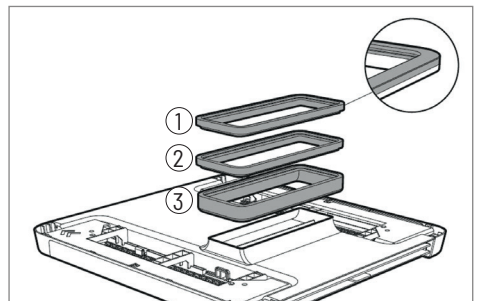
Do not use an impact driver for this step, as the maximum torque will be exceeded, and unit can be damaged.

- > Select the number of duct sections needed, according to the roof thickness.

i NOTE

- The number of middle duct sections (2) to be installed varies based on the roof thickness.
- However the base and top duct sections are unique and must be fitted on all installations.

- > Ensure the top duct section (1) contains the compressible foam on the top side and faces the roof top unit.
- > Add the required number of middle duct sections (2), according to the roof thickness in the below table.
- > The base duct section (3) is thicker and should be mated to seal with the ADB.



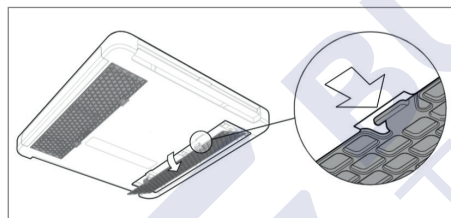
Roof thickness (mm)	Quantity of middle duct sections required
25 – 35	1
35 – 45	2

Roof thickness (mm)	Quantity of middle duct sections required
45 – 55	3
55 – 65	4
65 – 75	5

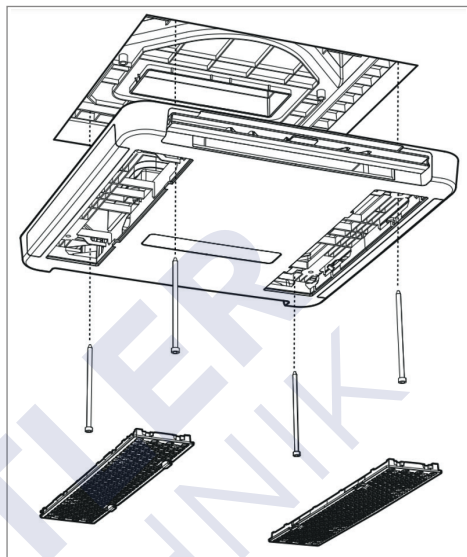
NOTE

For roof thicknesses from 75 mm to 100 mm an additional duct section kit must be ordered.
Order No. 29.0280.03.0065

- > Confirm the correct number of duct sections by offering the ADB up to the ceiling and checking that the ducts are sealing (compressing slightly) between the ADB and rooftop unit.
- > Remove the 2x air return grilles by pressing the 2 tabs while rotating downwards.



- > Fit the 4x M6 x 125 mm screws through the ADB into the rooftop unit.
- > Start by hand to avoid cross-threading.
- > Tightening torque: 2.5 Nm.

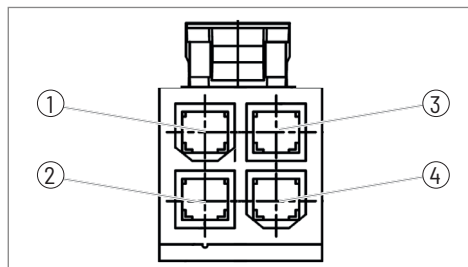


3.6.1 Communications wiring

- > Lower the ADB to make the communication and power connections. The communication connectors are pre-fitted plugs on a lead wire extending from the ADB.
- > Connect the 4-pin plug labelled "COMU" of the ADB to the 4-pin connector labelled "COMU" from the rooftop unit.
- > **Optionally**
 - connect the 4-pin plug labelled "RV-C" of the ADB to the 4-pin connector of your optional RV-C auxiliary controller (Molex ##### or equivalent).

NOTE

To avoid vibration noise secure cables to the ADB with cable ties.

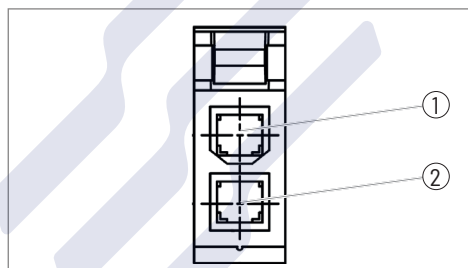


- 1 PS-
- 2 RV-C High
- 3 PS+
- 4 RV-C Low

NOTE

Important information on connecting a RV-bus-capable control unit to the unit as well as configuration of the RV-bus interface is available on the website of the RV-bus association: <https://www.rv-c.com>

- connect the 2-pin plug labelled "CI" of the ADB to the 2-pin connector of your optional CI-bus auxiliary controller (Molex ##### or equivalent).



- 1 LIN
- 2 GND

NOTE

Important information on connecting a CI-bus-capable control unit to the unit as well as configuration of the CI-bus interface is available on the website of the caravanning industry association:

<https://www.civd.de/technik/ci-bus.html>

3.6.2 Power wiring

- > Connect the wire labelled AC-L, AC-N and Earth to their respective supply wires from the vehicle using double insulated connectors and fasten to the underside of the ribs of the air return opening, forward of the ducts.
- > Re-fit the air return grilles.
- > Installation is complete.
- > Ensure the operating instructions are handed to the owner.

NOTE

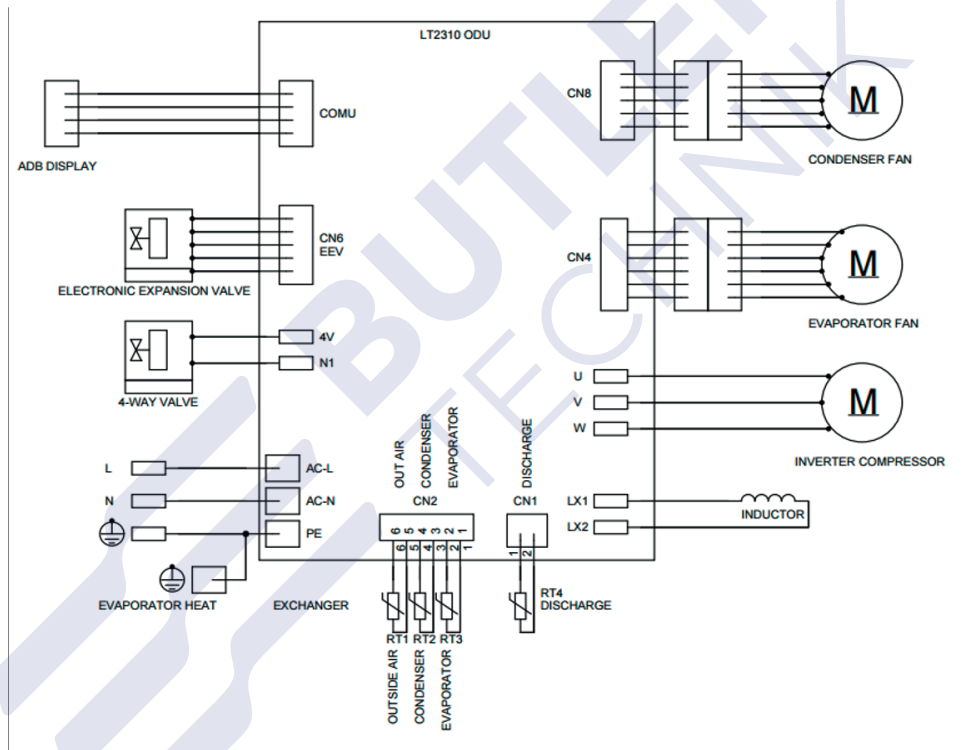
Ensure the unit remains in the upright position for at least 2 hours before it is turned on.

4 Circuit Diagrams

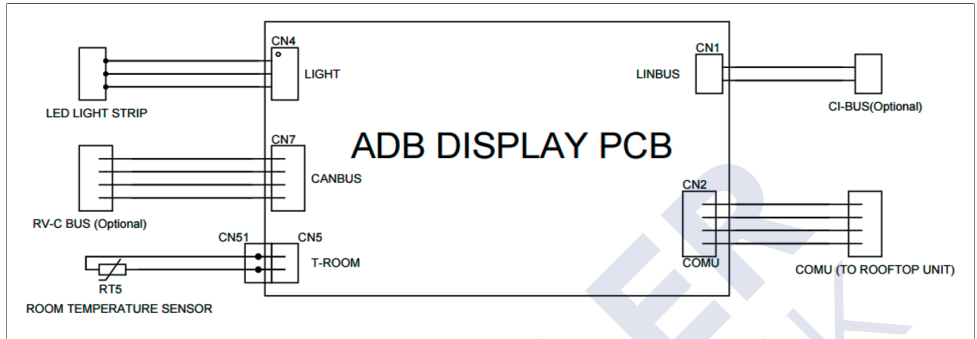
i NOTE

The control unit and air-conditioning system only function if the power supply cable is connected correctly. Incorrectly connected cables cause irreparable damage to the unit.

4.1 Electrical connection diagram



4.2 ADB Display PCB



5 Technical support

If you have any technical questions or problems with the device, the control unit or the operating software, please contact the following service address:

In Asia Pacific please contact:
support-AP@eberspaecher.com





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